Preparing Climate Impact Statements

This guide helps with…

Characterizing climate impacts and preparing statements that communicate the impacts being addressed in the project to the working group and other stakeholders.

Definitions: Climate Impacts & Statements

Climate impacts are the potential effects that a changing climate could have on society and equity, the economy and the environment. When initiating an adaptation planning project one of the first steps is to identify the climate impacts to be addressed and prepare climate impacts statements.

These statements are brief, written summaries of the selected impacts. They clearly communicate what will be considered in the planning effort. Project partners, working group members, topical or subject area experts all can help the project team determine which climate impacts should be considered.

Example Climate Impacts Statements

Below are a set of general climate impacts statements that can be modified to suit the needs of an adaptation planning project that is addressing sea level rise and storm impacts.[1] ART has been evaluating five sea level rise and storm impacts, and communicating them as follows:

1. More frequent floods

Extreme high Bay water levels will occur more often, leading to more frequent flooding in flood-prone areas that could disrupt access to power, goods and services, jobs, and emergency response and recovery resources.

2. More extensive, longer-duration flooding

Higher Bay water levels especially during storm events will flood larger areas for longer periods of time. Along with many other potential impacts, this may result in the increased mobilization of pollutants if contaminated lands such as closed landfills are subjected to prolonged inundation.

Other potential consequences of flooding include:

[1] For more information on the Adapting to Rising Tides (ART) Program climate impacts, and to view communication materials including graphic animations of the climate impacts go to (ART Findings/Climate Impacts URL).

- Increased cost to repair and maintain flood protection channels and storm drains that are overwhelmed during flood events
- Overwhelmed wastewater and stormwater treatment systems harming water quality, and environmental and public health
- Changes to sediment transport and deposition that affect the ability of tidal wetlands to keep up with sea level rise
- Lost wages and lower productivity during recovery, and disproportionate burden on individuals, households and neighborhoods with certain characteristics (e.g., income, housing tenure, age, ethnicity).

3. Permanent inundation

Sea level rise will cause areas not currently exposed to the tide to be inundated, resulting in the loss of trails, beaches, vistas, and other shoreline recreation areas, and the need to either protect or move people and infrastructure.

4. Shoreline erosion and overtopping

Higher water levels will cause changes in tidal and wave energy, leading to increased shoreline erosion and the potential for shoreline protection, such as levees, berms and revetments to be damaged or fail. There is also the potential that shoreline protection will be overtopped during storm events when there are extreme tides levels and wind-driven waves, flooding inland areas that are currently protected.

Other potential consequences of inundation, shoreline erosion and overtopping include:

- Damage to shoreline protection structures creating the need for more frequent replacement, repair and/or maintenance
- Disproportionate burdens on community members with certain characteristics (e.g., low income renters and homeowners) caused by repair, retrofits or relocation, and higher insurance, goods, and services costs
- Loss of tidal wetlands that cannot keep up or migrate inland and reduced ecosystem service benefits (water quality, habitat, flood risk reduction)

5. Elevated groundwater and increased salinity intrusion

As the sea level rises, groundwater levels and salinity intrusion will increase, affecting water supplies along the shoreline, damaging below or at-grade infrastructure, requiring additional pumping and costly maintenance and repairs of stormwater and flood control facilities, and increasing the risk of earthquake-induced liquefaction.

Other potential consequences of elevated groundwater and increased salinity intrusion include:

- Damage to below grade living spaces, finished basements, and below-grade electrical or mechanical equipment
- Mobilization of contaminants at contaminated sites, including those that have already been remediated or closed.
- Saltwater intrusion into fresh water coastal aquifer supplies